ALEX MILLER, Ph.D.

Data Scientist | Developer | Researcher

CONTACT

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🔗 Website: alexmiller.phd

in LinkedIn

‹› SKILLS

Programming

`Python` `R` `HTML/CSS/JS`

`SQL` `Postgres` `CI/CD`

`Containerization`

`Full Stack Development`

`LLM-based Workflows`

Data Science

`Machine Learning` `A/B Testing`

`Causal Inference` `Statistics`

`Data Visualization`

`Decision Theory`

EDUCATION

Ph.D. in Information Systems

University of Pennsylvania

The Wharton School

Dissertation on e-commerce A/B Testing

B.A. in Mathematics

University of Oregon

Clark Honors College, summa cum laude

Thesis on algebraic knot theory

‹› PROFESSIONAL SUMMARY

Full-stack data scientist and researcher with expertise in applied statistics, A/B testing, causal inference, and machine learning. Combines deep scientific rigor with hands-on technical skills, business strategy insight, and clear communication. Passionate about turning complexity into clarity, using science to align business and engineering priorities and transform difficult problems into strategic, rigorous, data-driven solutions.

💼 PROFESSIONAL EXPERIENCE

ASST. PROFESSOR, QUANT MARKETING   USC Marshall School of Business | Los Angeles, CA

Research and teaching at the intersection of scientific management & marketing.   2021 - 2025

- Developed novel algorithms for **personalized discount targeting** using causal machine learning
- Published research on **p-hacking detection** in e-commerce A/B testing
- Created decision-theoretic framework for **contextual targeting using Bayesian reasoning**
- Designed data pipelines combining **Python and SQL** to process large-scale (500m+ row) datasets
- Taught undergrad marketing courses; placed advisee into **research assistantship at MIT Econ**

FULL STACK DEVELOPER & DATA SCIENTIST   SmartyPal | Philadelphia, PA

Wearer of many hats at fast-paced ed-tech startup.   2014 - 2015

- Co-authored successful **NSF SBIR grant** resulting in nearly $900,000 of non-dilutive funding
- Developed server-side Django API for **data collection and processing** (Linux, PHP, Python, R)
- Adapted and implemented **personalized learning algorithms** based on item response theory
- Played major role in marketing efforts including **website development and advertising**
- Worked closely with PM and front-end engineer to launch **award-winning MVP iPad app**

DIGITAL MARKETING SPECIALIST   Adpearance | Portland, OR

Primary analytics, A/B testing, and SEO specialist.   2012 - 2014

- Initiated and developed **two core service offerings** for A/B testing and Automotive SEO
- Implemented keyword research, semantic markup, and **enhanced analytics tracking** systems

⚖ SOFTWARE PROJECTS

- **Wharton Interactive A/B Simulation Tool**: Developed simulation-based web application for immersive learning on A/B testing and personalized targeting, used by thousands of students across the globe.
- reproduce.work: Command line tool to facilitate **fully reproducible (i.e., containerized) scientific workflows**. Helps scientists create self-documented scientific pipelines, from data analysis to LaTeX document generation.

⚖ WRITING

- **Harvard Business Review:** "Want Less-Biased Decisions? Use Algorithms."
- **Book Chapter: Deploying LLMs in Summarization Pipelines**: Contributed a chapter to *The Oxford Handbook on the Foundations and Regulation of Generative AI*.